Memo to: Mr. A. W. Hook
From: Frank J. Laird, Jr.
Re: Preparation and Analysis of Vegetation Samples
Date: February 18, 1969

The sample procedure as outlined by ALCOA is very good and we adhere to this method with one exception. We do not always collect a control sample from a location completely out of the area of potential fumigation. In addition, we also provide samples of pine needles for fluorine analysis. This is not referred to in ALCOA's sample procedure. At one time, concerning Item 6.1 Green Vegetation - grass, leaves, etc., we followed this outline completely. However, it proved too impractical and slow as you will read when you receive our present procedure. We have modified Item 6.2 Green Vegetation Oven Dry Procedure to meet the demands on a production line basis.

In general, methodology and reagents are identical between what Anaconda uses and what ALCOA has suggested. However, not included in this ALCOA report is the "state of the art". A summation of these minor differences are:

No. 1. Our lab does more than analytical work concerning fluorides. Vegetation samples are immediately returned to the lab in brown paper bags. They are prepared in the Wiley and transferred to a polyethelene container with a measured 3 grams of CaO. The tightly sealed container is stored in a freezer until analytical time is available.

No. 2. We dry for 16-hours at a low heat, less than 105°, on an electric plate. We then oven dry for 24-hours at a controlled temperature.

No. 3. Reference ALCOA Item 6.1.6.3 We do not use pestle and mortar. We grind directly in the inconel container using a specially fitted glass beaker. The ground product is then transferred to a stoppered bottle and all adhering material is removed by wire brushes.

No. 4. Reference ALCOA Item 6.1.6.5 Some bottled gases contain fluorides, consequently, we do not use gas and a Fisher burner. This method has been replaced by the use of electric hot plates.

No. 5. Reference ALCOA Item 7.1 Glass beads are not as practical as glass wool fibres. These glass wool fibres provide better control in the distillation process. We also have a 2-step addition of perchloric acid - 1) rinse at 5 ml, 2) add an additional 70 ml. This is in contrast to the 50 ml recommended by ALCOA.